



Brief Four

Conditions for Scale and Sustainability

Research for Action • September 2012

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About Research for Action

Research for Action (RFA) is a Philadelphia-based nonprofit organization. We seek to use research as the basis for the improvement of educational opportunities and outcomes for traditionally underserved students. Our work is designed to strengthen public schools and postsecondary institutions; provide research-based recommendations to policymakers, practitioners and the public at the local, state and national levels; and enrich the civic and community dialogue about public education. For more information, please visit our website at www.researchforaction.org.

Acknowledgments

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RFA staff members traveled across the country to interview educators at the sites and observe classrooms and professional development. Our team was also instrumental in developing interview and observation protocols and synthesizing fieldwork data into analytical memos. Kate Shaw, RFA's executive director provided guidance and insight throughout all phases of the research process. We would also like to thank our interns Claire Crawford, Kamaila Sanders, Sue Yee Chen, and Afiya Romeo who transcribed interviews and contributed to the analysis of interview data. Finally, Eric Foster of MDF Research & Associates consulted on the development of the literacy and math teacher surveys, administered the surveys, and analyzed the data; we appreciated his responsiveness to our many requests for just one more analysis. Our Communications Director, Alison Murawski, and our Communications Assistant, Allison Petrosky ably coordinated many aspects of report production. Finally, we would like to acknowledge Anne Tiballi, who carefully edited this brief.



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Introduction

The transition to the Common Core State Standards (CCSS) represents an unprecedented opportunity to transform educational practice. The Bill and Melinda Gates Foundation has invested in the development and dissemination of high quality instructional and formative assessment tools to support teachers' incorporation of the CCSS into their classroom instruction. Literacy experts developed a framework and a set of templates that teachers can use to develop content area modules focused on rigorous writing tasks closely tied to subject area texts. Math experts developed Formative Assessment Lessons that teachers can incorporate throughout the year's curriculum. Both tools target the "instructional core." This initiative builds upon research of the past two decades that stresses teachers' attention to high quality instructional tasks (City, Elmore, Fiarman, & Teitel, 2010; Hiebert & Carpenter, 1992; Hiebert & Wearne, 1993; Jones, Valdez, Nowakowski, & Rasmussen, 1994), use of formative assessments embedded in those tasks (Black, Harrison, Lee, Marshall, & Wiliam, 2004; Clarke & Shinn, 2004; Fuchs, 2004; Tunstall, 1996), and professional learning opportunities that attend to both content knowledge and instruction (Birman, Desimone, Porter, & Garet, 2000; Cohen & Hill, 1997; Kennedy, 1998).

A study by Research for Action (RFA) examining the first year of piloting the Literacy Design Collaborative (LDC) and Math Design Collaborative (MDC) tools (2010-11) found evidence of initial success in tool use indicated by teachers' perceptions that the tools positively influenced teacher practice. In the second year of the Initiative (2011-12), tool use grew within and across sites. The focus of the research has expanded accordingly to include an analysis of how the tools are being introduced to additional classrooms, schools and districts, and what strategies are most effective in sustaining and strengthening tool use.

In This Brief

This brief focuses on efforts to scale up and sustain broader use of the tools. It begins with an introduction in which "scale-up and sustainability" is defined, providing the framework for this brief. The introduction also provides detail on the extent to which use of the tools has grown within study sites, both in terms of additional teachers/schools/districts/networks, and in terms of the greater integration of the tools into teachers' practice. In addition, we provide a review of the theory of action driving the LDC/MDC Initiative, highlighting the underlying conditions necessary for robust

implementation to occur. The second section of the brief presents findings on the extent to which the supporting conditions necessary for robust LDC/MDC tool implementation - alignment, leadership and professional learning opportunities - are in evidence at the various study sites. The final section of the brief offers suggestions for supporting enhanced and expanded LDC/MDC tool implementation.

Findings in this brief draw on observations of teachers and professional development providers, interview data from tools developers and professional development providers, and interview and survey data from teachers, school administrators, district/regional and network leadership, and state-level policymakers/partners. A review of our research activities is provided in Figure 1.

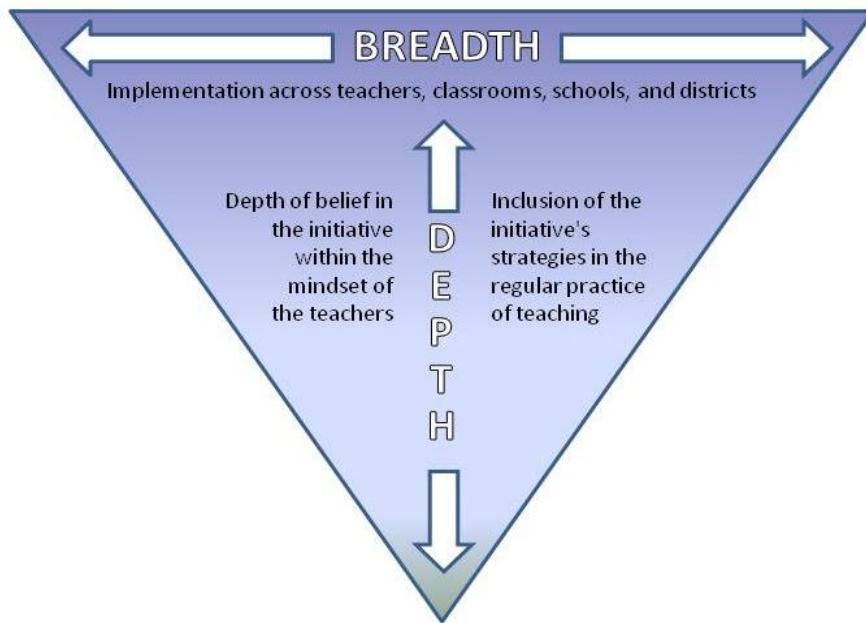
Figure 1. RFA research activities

RFA Research Activities		
Level of Data Collection	2010-2011 Research	2011-2012 Research
Tool developers (LDC and MDC)	5 interviews	6 interviews
Professional development providers	2 interviews	4 interviews
Professional development observations	15 observations	9 observations
State-level policymakers & partners	5 interviews	15 interviews
District/regional & network leadership	15 interviews	20 interviews
School administration	29 interviews	26 interviews
Teachers	121 Interviews and 37 observations	120 Interviews and 65 observations
Surveys 2010-2011:(9 Districts) 2011-2012: (39 Districts)	Teachers: 179 (Response rates: LDC: 71%; MDC 53%)	Teachers: 336 (Response rates: LDC: 53%; MDC: 54%) Principals: 65 (Response rate: 57%) District Admin: 75 (Response rate: 71%)

Defining Scale-Up and Sustainability

Traditionally, scale-up has been defined as simply an increase in the number of teachers, classrooms, schools, and/or districts implementing a particular model—in other words, the breadth of adoption. However, researchers have more recently stressed the need to also look at the depth of the scaling—the degree to which a reform is embedded within a school and targets “core” educational practices. Sustainability—vital to determining the ultimate success of an educational reform—is generally defined as the ability to maintain the reform over time in the original and subsequent schools. These characteristics—breadth and depth of implementation and supportive conditions that enable sustainability—are requisites of strong scale-up and sustainability of the MDC/LDC Initiative. These elements of scale up and sustainability are represented graphically in Figure 2 below.

Figure 2. Scale-up and Sustainability



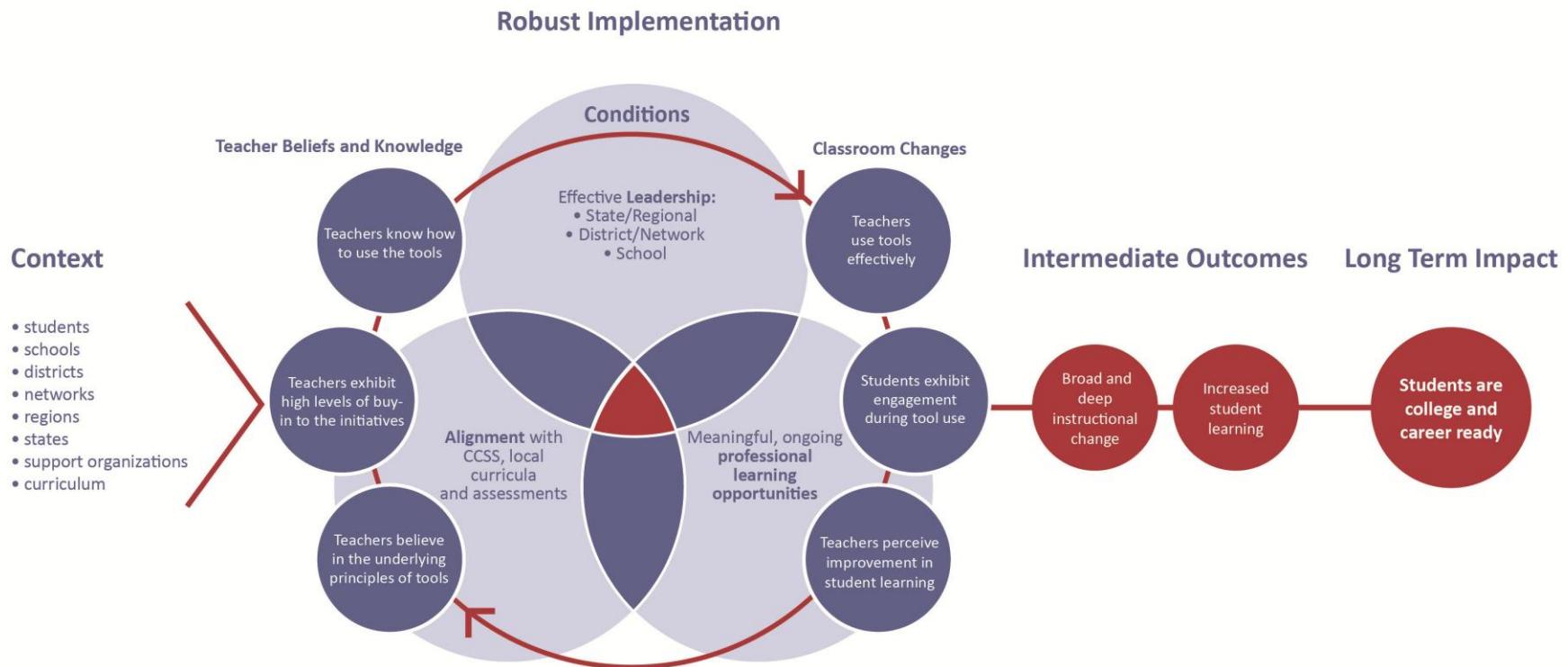
Conditions that Support Scale Up and Sustainability

A strong and comprehensive system of supports is necessary to help teachers make the kinds of substantive changes in their instructional practice that are called for in the LDC and MDC Initiatives. School, district, state and partner leaders can do much to establish the set of conditions in which teachers see the value of proposed changes, embrace new practices, and continue to deepen their efforts over time.

As illustrated in the Theory of Action below (Figure 3), three overlapping Conditions represent the web of organizational, policy, and professional learning supports necessary for implementing, sustaining and growing the use of the tools. RFA's first year research on the utility of the MDC/LDC tools, and the literature on successful scale-up and sustainability of education reform initiatives¹, informed the identification of the conditions required to support robust implementation of the tools. These conditions, presented in the RFA reports from the 2010-11 research on tool implementation, have been revised to include expanded research on leadership, including the roles of state agencies and state partners.

¹ Coburn (2003) and Datnow, Hubbard and Mehan (2002) found that reform sustainability requires **alignment** across multiple actors in the classroom, school, district and state governments. Coburn goes further to explain that **leadership** systems also need to be in place at multiple levels, including **professional learning communities**. Research has also found that teachers need to interact with each other and be able to access ongoing, intensive support to implement and sustain reforms (Bodilly, Glennan, Kerr, Galegher, 2004; Cobb, McClain, Lamberg, & Dean, 2003).

Figure 3. Theory of Action



We define each Condition as follows:

Alignment: In order for a school reform to be successful, it needs to be in alignment with other policies and initiatives taking place in the school, district and state in which the reform is being implemented. If initiatives and policies are at cross-purposes, it becomes difficult to progress in any one direction. The LDC and MDC tools were designed to operationalize the Common Core State Standards (CCSS). Therefore, alignment with these standards, other local curricula, and state and local assessments is important for successful implementation and scale-up of the tools.

Leadership: Effective leaders at all levels, including the school, district/network, region, and state, need to champion and guide the Initiative, provide needed resources and training, and help teachers understand how the Initiative fits into an overall plan for educational improvement.

Professional learning opportunities: Teachers and leaders need meaningful and ongoing professional development and technical assistance to refine their practice as they move forward, to understand the purpose of the tools, and to implement the tools in the classroom. Both formal professional development sessions and more informal collaboration between teaching colleagues should occur on a regular basis.

Status of Scale Up and Sustainability

Progress has been made in the breadth and depth of implementation, but much remains to be done. Brief One provides a broader national perspective of LDC/MDC scale-up; and Briefs Two and Three provide a more granular examination of the status and progress of the LDC and MDC Initiatives individually. An analysis of the Initiative's scale up and sustainability efforts across our study sites is provided below.

There has been an expansion in the breadth of tool use: The following four figures illustrate the level of expansion in the four LDC and four MDC study sites, broken out by the number of teachers and the number of schools involved in the Initiatives. “Experienced teachers” are defined as teachers who were involved in the Initiative in the 2010-2011 school year and remained involved for the 2011-2012 school year; “new teachers” are those who are new to the Initiative in the 2011-2012 school year.

Figure 4. LDC teacher scale-up

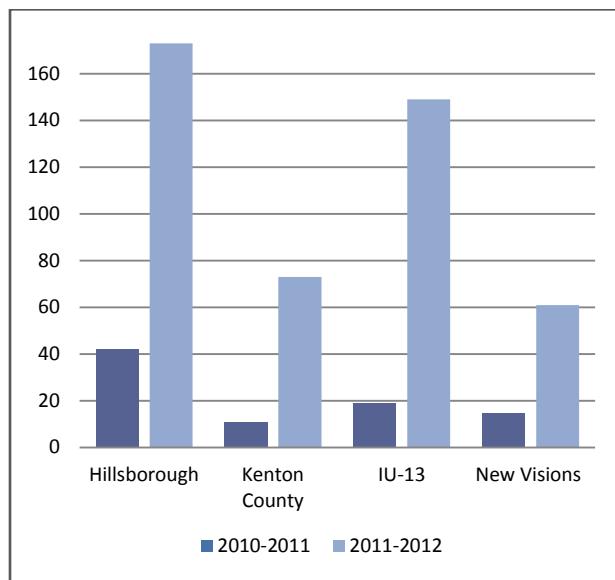


Figure 5. MDC teacher scale-up

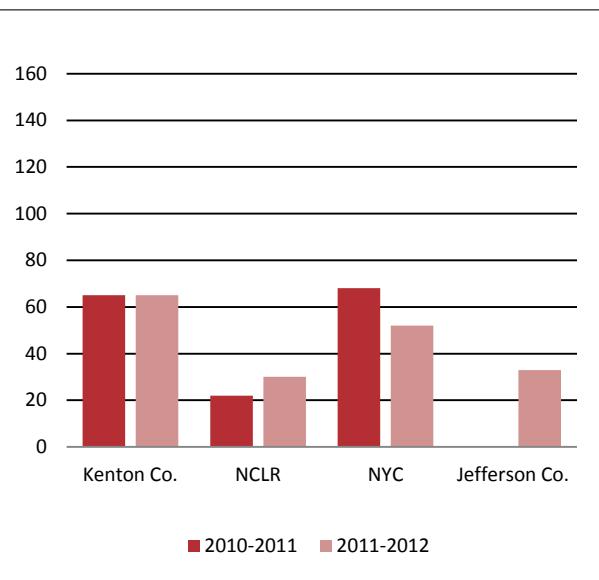


Figure 6. LDC school scale-up

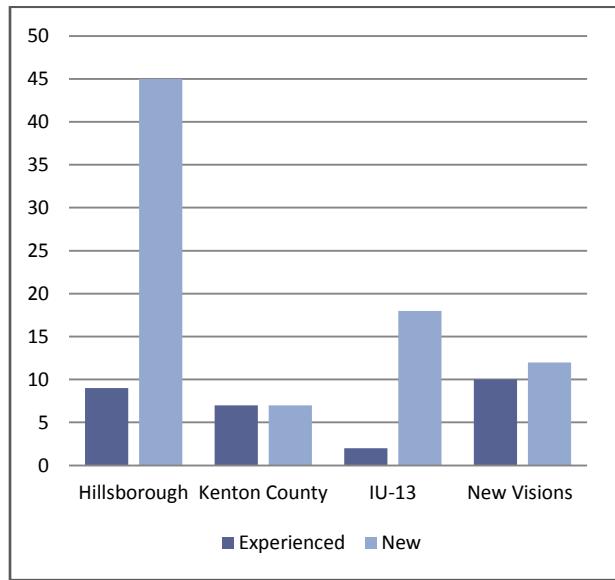
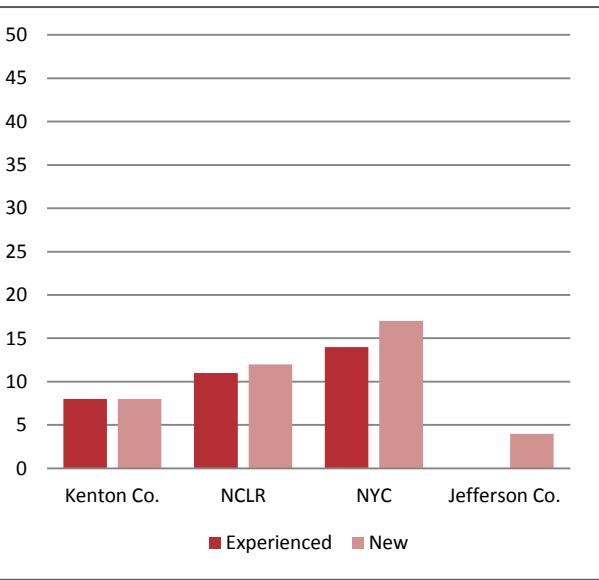


Figure 7. MDC school scale-up

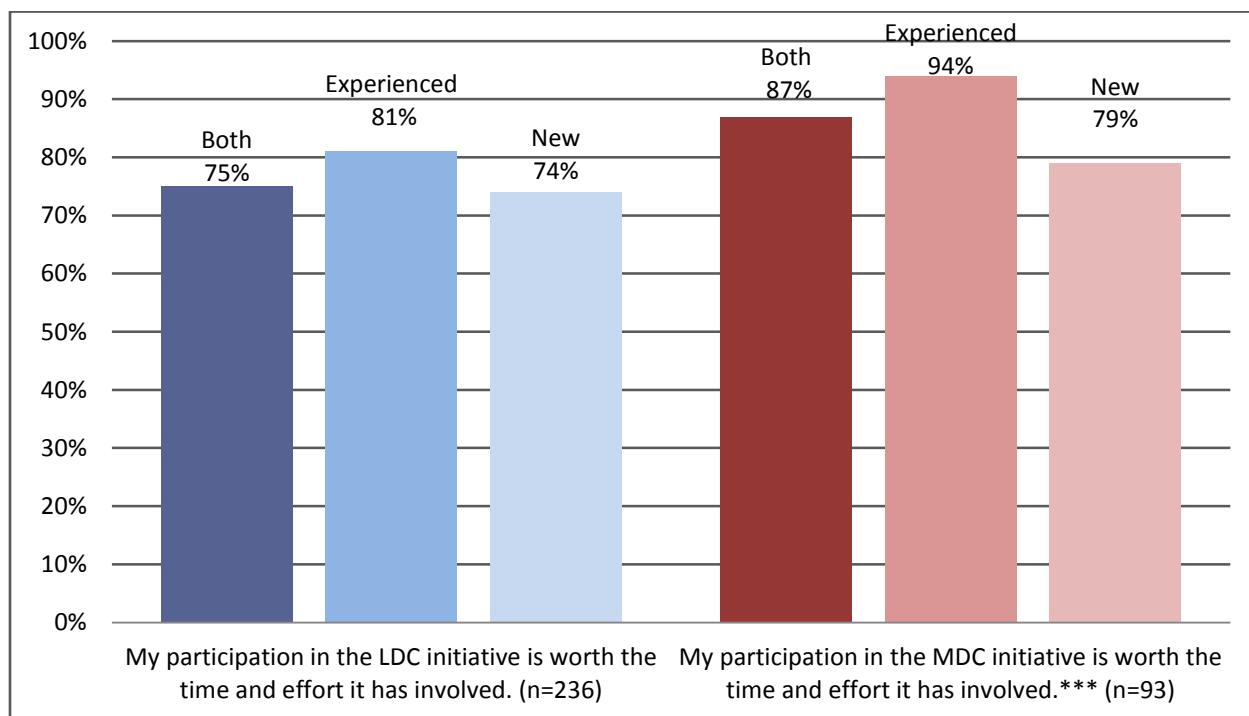


The depth of scale-up has increased as teachers and administrators have become more experienced with the tools. Teachers have indicated their belief in the utility of the tools, and school and district administrators have indicated their commitment to the ongoing use of the tools.

- **Teacher Buy-In.** Teacher buy-in is a central indicator of whether a reform has become a part of teacher practice. Figures 8 and 9 show the percentage of teachers across tool use experience levels who feel that the Initiatives are: 1) worth the time and effort involved in the Initiative; and 2) central to their instructional practice. The majority of both new and experienced teachers found value in the tools and saw them as central to their instructional practice.

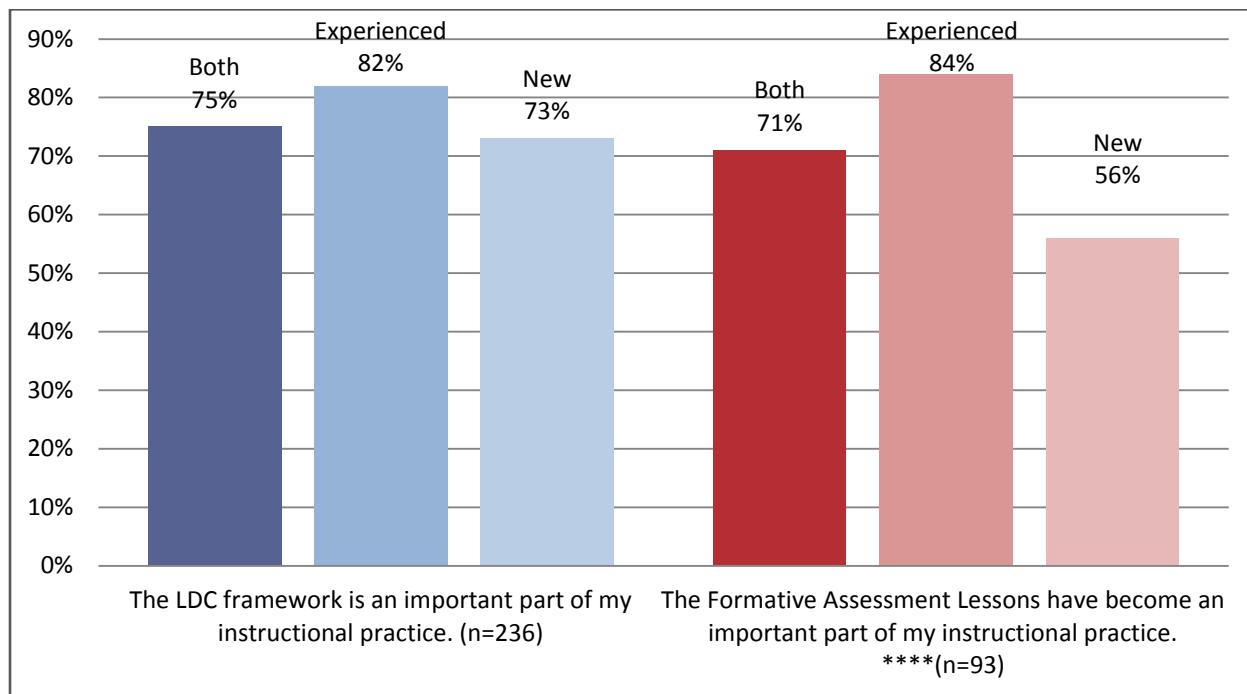
As the Initiatives have expanded to more teachers and schools, however, new teachers attach less value and importance to the tools than do more experienced teachers. This is most notable in MDC survey data, in which 56% of new teachers surveyed reported that the tools are central to their instructional practice while 84% of experienced teachers surveyed reported the same. A more extensive discussion of teacher buy-in is included in Briefs Two and Three on LDC and MDC implementation.

Figure 8. Teacher buy-in regarding the value of the tools



***Differences between experienced and new teachers are significant at the 0.05 level.

Figure 9. Teacher perceptions of the importance of the tools in their instructional practice

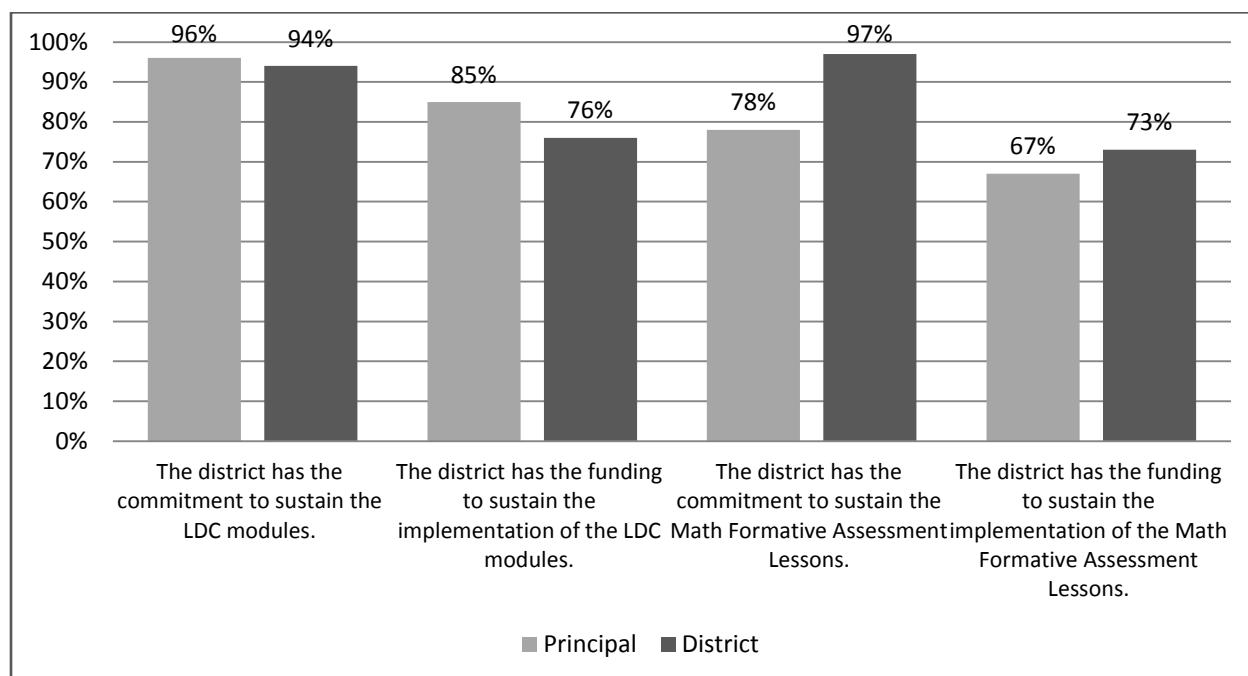


****Differences between experienced and new teachers are significant at the 0.01 level.

- **Administrator Support.** Study sites are committed to sustaining the tools. The majority of both principal and district survey respondents reported that their districts are committed to sustaining the LDC modules and/or Formative Assessment Lessons and have the necessary funding, at least in the short term. When asked about immediate plans (school year 2012-13) for sustaining and scaling up the initiative in their schools and districts, administrators overwhelmingly indicated their intentions to continue use of both the LDC and MDC tools.

However, a lower percentage of respondents reported that long-term funding was in place, especially to sustain the math Formative Assessment Lessons. Most district level respondents indicated that plans exist to sustain the Initiative in the future, with or without funding. Three principals at one site explained that, for them, professional development and continued collaboration are the keys to sustainability (see Figure 10).

Figure 10. Principal and district respondent perceptions of district sustainability

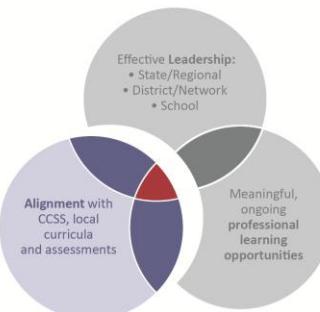


While our research has found that the issues of alignment, leadership and professional learning opportunities have been addressed by study sites through a number of different strategies, the effectiveness of these strategies vary across sites. As the tools are scaled further, important lessons can be learned from the work going on at the current sites. The following section of this brief provides research findings organized by “supporting conditions” necessary for robust tool implementation and scale-up and sustainability.

Findings on Conditions that Support Scale-Up

Our discussion of factors that impact the scale-up of the tools focuses on three Conditions aligned with the literature and Year One research on tool implementation. These conditions, represented in the Theory of Action (see Figure 3) and identified above as Alignment, Leadership, and Professional Learning Opportunities, have been found to be central to the successful scale-up of complex education reform initiatives such as the formative assessment tools. We present our findings on each Condition below.

Alignment



Alignment with the CCSS, curricula and assessment is necessary so that teachers do not receive mixed messages about the importance of the Initiative to achieving the goals of instructional improvement and increased student learning.

Alignment between CCSS, local curricula, and assessments is essential. The following questions guide the discussion of the degree of alignment in the study sites:

1. How does alignment with the state policy context impact tool implementation and scale-up?
2. Are the LDC and MDC tools seen as aligned with the content of the Common Core State Standards and the district curricula in the study sites?
3. How strong is the relationship between overall alignment of the Initiatives and indicators of Robust Implementation?

How does alignment with the state policy context impact tool implementation and scale-up?

In the era of Race to the Top, No Child Left Behind, and the adoption and implementation of Common Core State Standards, schools and districts cannot implement reform in a vacuum. State policy context impacts new classroom-based initiatives to a degree never seen before. In the following section, we briefly discuss several aspects of the state policy context that have had an influence on the scale-up and sustainability of the LDC and MDC tools.

Common Core implementation timelines may impact the priority given to tool implementation. The LDC and MDC tools were developed to provide teachers with resources to address the Common Core State Standards (CCSS) in the classroom. The states included in our research, however, are on different timelines for the implementation of the CCSS. This variation may influence the priority given to implementing curricula aligned to the CCSS. As displayed in Figure 11, Kentucky and New York have developed expectations for instruction aligned with the CCSS at the secondary grades for the 2011-2012 school year, while Colorado, Florida, and Pennsylvania do not expect to see widespread instruction based on the Common Core until 2013-2014.

Figure 11. Timeline for instruction and assessment aligned to the CCSS

State	Year in which CCSS aligned instruction is expected in secondary school classrooms	Alignment of current state assessment to the Common Core State Standards (CCSS)
Colorado	2013-14	Transitional Colorado Assessment Program (TCAP): Aligned
Florida	2013-14	Florida Comprehensive Assessment System (FCAT) 2.0: Not Aligned
Kentucky	2011-12	Kentucky Performance Rating for Education Progress (K-PREP): Aligned
New York	2011-12	New York State Assessment Program: Not Aligned
Pennsylvania	2013-14	Pennsylvania System of School Assessment (PSSA): Not Aligned

Teachers perceived competition between tool use and other aspects of the curriculum.

Even in states in which student assessments are aligned to the CCSS, given limited time to cover all materials the emphasis on the content to be covered in preparation for end-of-course and other state testing may create tension for teachers using the tools. For example, 56% of teachers surveyed who use the LDC modules said that teaching modules takes too much time away from covering required curriculum topics, up from 38% of teachers last year. As one teacher explained:

We're looking at end of course assessments...this (LDC) doesn't fit with those kinds of tests...they are polar opposites of one another. Do you want scope (end-of-course assessment) or do you want us to go broad or deep (LDC framework)? You can't have it both at the same time. If you want students to be prepared for end of course assessments, then you have to give up the depth. You can't go deep and long at the same time. You have to choose which one you want.

Emerging teacher evaluation systems may create disincentives for tool use. In integration districts across multiple states (Colorado, Kentucky and Louisiana), the LDC and MDC tools are being implemented in conjunction with the development of new teacher evaluation systems that will be scaled statewide. In other study sites, the teacher evaluation system required by the state includes the results of assessments not yet aligned with the Common Core. A state-level respondent explained that, “we are not mentioning the Common Core State Standards [yet]...because teachers are evaluated on implementation of the (current state standards)...we do not (want to) confuse the teachers with their accountability model.” Teacher evaluation systems that are not based on assessments aligned with the CCSS may dampen teachers’ willingness to use the tools.

States can support scale-up by providing resources for Common Core instruction. It is important to consider the resources that the SDEs have made available to schools and districts to support the implementation of the Common Core State Standards through the promotion of tool scale-up (see Figure 12). For example, New York developed the EngageNY website as a resource for teachers; the site includes “curriculum exemplars” that can be used in English/language arts and math. Pennsylvania’s Standards Aligned System (SAS) portal includes “voluntary model curriculum,” including LDC modules that have been created by teachers in the state. Colorado’s State Department of Education developed an online Standards Implementation Toolkit, including “discipline concept maps,” to provide visual representations of unifying themes along with organizing and supporting concepts for each discipline and grade level within the Colorado Academic Standards. The Kentucky Department of Education provides educators with the Continuous Instructional Improvement Technology System (CIITS) to provide public school educators with resources aligned to the standards and provides the LDC and MDC tools as resources for implementing the Common Core. Lastly, Florida has developed CPALMS, an online portal with information and curricular resources to support the implementation of the Next Generation Sunshine State Standards (NGSSS) as they transition to the Common Core. The majority of district-level survey and interview respondents were aware of these and other state resources, such as webinars and training sessions, on the Common Core State Standards.

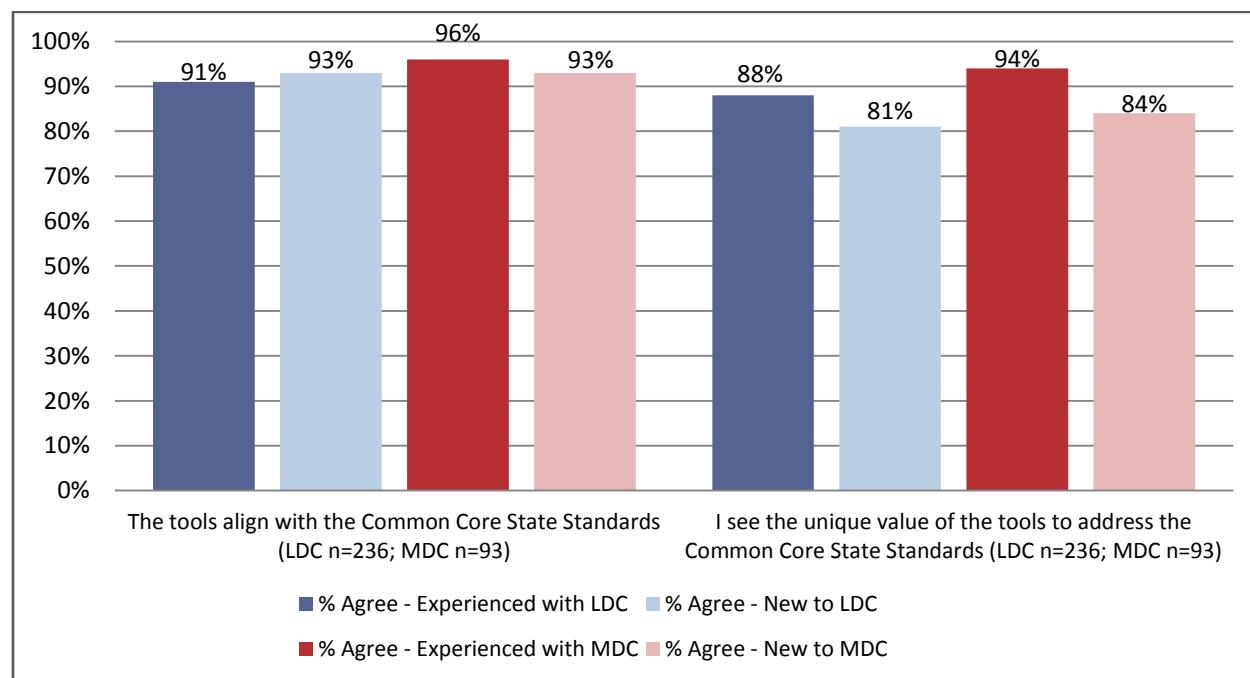
Figure 12. State Department of Education resources for Common Core instruction

State	State Department of Education Online Resource	Percentage of District Administrators aware of state resources
Colorado	Standards Implementation Toolkit	93%
Florida	CPALMS	81%
Kentucky	Continuous Instructional Improvement Technology System (CIITS)	100%
New York	Engage NY	100%
Pennsylvania	Standards Aligned System (SAS) Portal	94%

Are the LDC and MDC tools seen as aligned with the content of the Common Core State Standards and the district curricula in the study sites?

The tools are perceived as aligned with the content of the CCSS and local curricula. The majority of teachers, principals and district leaders expressed agreement that the LDC and MDC tools are aligned with both the Common Core State Standards and local curricula, supporting tool use and expansion of the Initiatives (see Figures 13-15).

Figure 13. Teachers' beliefs about alignment of tools with the Common Core State Standards



Teachers and administrators also perceived the “unique value” of the tools in addressing the standards. There are a number of curricula being developed to address the CCSS, some of which are used in our study sites, but the majority of new and experienced teachers see the LDC and MDC tools as distinctive because they provide a way for teachers to operationalize the standards in the

classroom. A large majority of school and district administrators also spoke of the tools' usefulness in moving their schools and districts toward instructional alignment with the CCSS.

Alignment with local curricula is seen as weaker than alignment with the CCSS. As can be seen in Figures 14 and 15, perceived alignment of the tools with local curricula was weaker than alignment with the Common Core, especially among new teachers as compared to experienced teachers. However, the majority of teachers and administrators saw the tools as aligned.

Figure 14. Teacher perspective on the alignment of the tools with school curricula

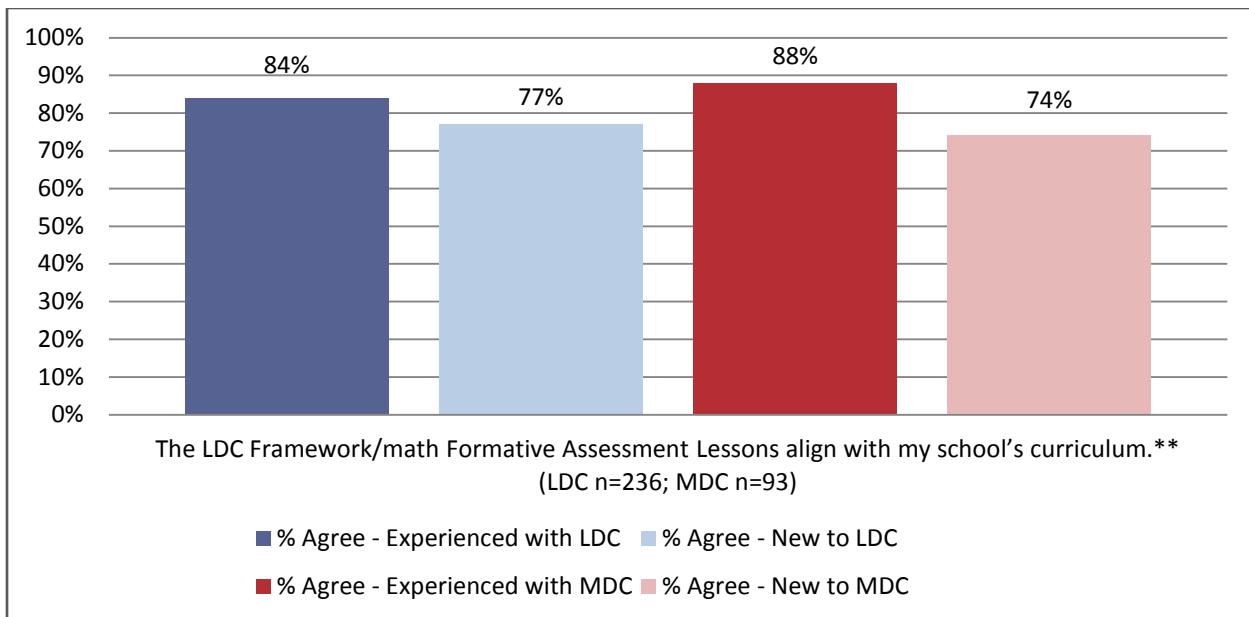
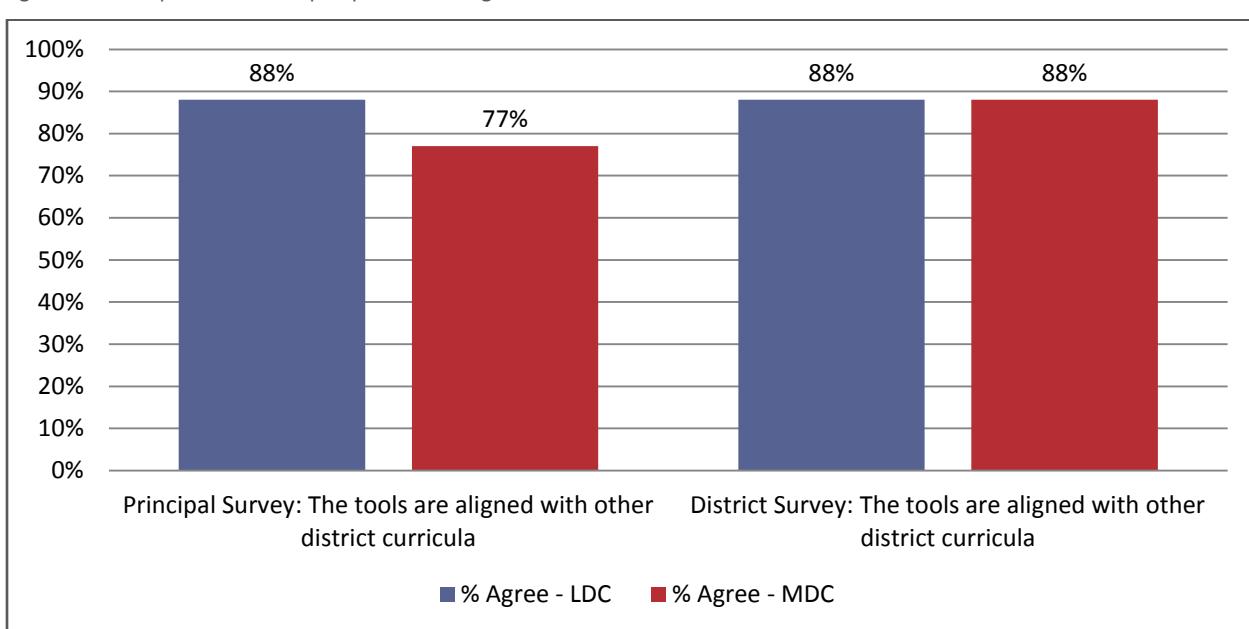


Figure 15. Principal and district perspective on alignment of tools with district curricula



Is there a relationship between overall alignment of the Initiatives and indicators of Robust Implementation?

As seen in the Theory of Action (see Figure 3), indicators of Robust Implementation consist of a set of Teacher Beliefs and Knowledge, and Classroom Changes. As Figure 16 shows, surveys of teachers implementing the LDC framework in the 2011-2012 school year reveal a positive relationship between perceptions of overall alignment and most of the indicators, including teacher buy-in, teacher knowledge, change in instructional practice, student engagement, student learning and breadth and depth. Further, when strong alignment exists between LDC and local and state curricula and standards, indicators of Robust Implementation are found to exist.

While a positive relationship exists between perceptions of overall alignment and indicators of Robust Implementation among survey recipients implementing the MDC tools, this relationship is much weaker than for the LDC initiative (see Figure 16.)

The alignment construct represents survey items measuring teacher perception of alignment of the tools to school curriculum, state assessment tests, as well as CCSS.

Figure 16. Correlations between Robust Implementation Indicators and alignment

	Teacher Beliefs	Teacher Buy-in	Teacher Knowledge	Instructional Change	Student Engagement	Student Learning	Breadth & Depth	Mean
(LDC)	.10	.60	.44	.48	.54	.60	.26	.43
(MDC)	.02	.09	.10	.19	.12	.25	.01	.11

NOTE: Correlation greater than 0.10 are and highlighted in this table.

Explanations for the weak relationship between Alignment and Robust

Implementation Indicators in MDC. Our research provides two explanations for the lack of a clear relationship between alignment and robust implementation indicators for teachers using the MDC tools:

- **Formative Assessment Lessons were continuing to be developed:** As the MDC initiative is rolled out, additional lessons are being created, tested and becoming available for use in the classroom. This will offer teachers greater access to lessons which fit their curriculum and teaching schedules.
- **Teachers do not create their own “classroom challenges:”** Unlike with LDC modules, MDC “classroom challenges” are not created or revised by teachers for their own use in the classroom. This difference influences the impact of the different tools on teachers’ practice.
- **Formative Assessment Lessons require less time to implement than LDC modules:** As compared to LDC, the MDC Initiative does not require the same amount of time as the process of module development and classroom implementation required for the LDC tools. Rather, the MDC Initiative operates as a formative assessment that can be included as part of a larger unit for two or three days instead of two or three

weeks. For this reason, the Formative Assessment Lessons do not yet represent as large a shift in instructional practice; as the Formative Assessment Lessons are used more often, this dynamic may change.

- **The level of implementation varied across MDC sites:** In three of the four MDC sites where our research was conducted, the MDC initiative was still in its infancy, with minimal impact on curriculum overall. Given the lack of focus on the MDC initiative, it is too early to measure relationships between conditions and implementation.
- **Teachers reported competition between the MDC tools and other curricula.** As compared to the LDC survey respondents, a higher portion of MDC respondents (in three of four study sites) teach in districts in which MDC was being implemented alongside a larger math curricular reform. Specifically, Springboard, task bundles developed by the Institute for Learning, and College Preparatory Math (CPM) were being implemented in three study sites. Further, 70% of teacher survey respondents reported that other curricular initiatives competed with MDC, as compared with 60% in the LDC study sites.

The differences between the LDC and MDC tools will be further explored in future research.

Leadership



Effective leaders at all levels, including the school, district/network, region, and state, need to guide and champion the Initiative, provide needed resources and training, and help teachers understand how the Initiative fits into an overall plan for educational improvement.

Leadership occurs at the school, district/network and state/regional levels. The following questions guide this discussion of the coordination and support of these levels of leadership in study sites:

1. How have leaders at the school and district/network levels coordinated and supported the work of expanding and deepening tool use?
2. How have leaders at the regional and state levels coordinated and supported the work of expanding and deepening tool use?
3. How strong is the relationship between effective leadership and indicators of Robust Implementation?

How have leaders at the school, district/network levels coordinated and supported the work of expanding and deepening tool use?

Although teacher leaders, principals, and district leaders support the Initiative in different ways, all levels of leadership were found to be important to the use of the tools and their scale-up. This section

will first outline leadership related to tool use occurring at the school level and then provide detail about the district and state contexts in which the school is situated.

School Level Leadership

School leadership is necessary in encouraging tool use and the adoption of the Initiative. As was mentioned in a recent article in *Education Week*, “principals were being overlooked in national conversations about how to get educators ready for the Common Core State Standards. But that is changing (Gewertz, 2012).”

Principal Responsibilities Related to Tool Implementation and Scale-up. Based on teacher and administrator interviews, four key responsibilities for principals were identified as important to successful tool implementation and scale-up:

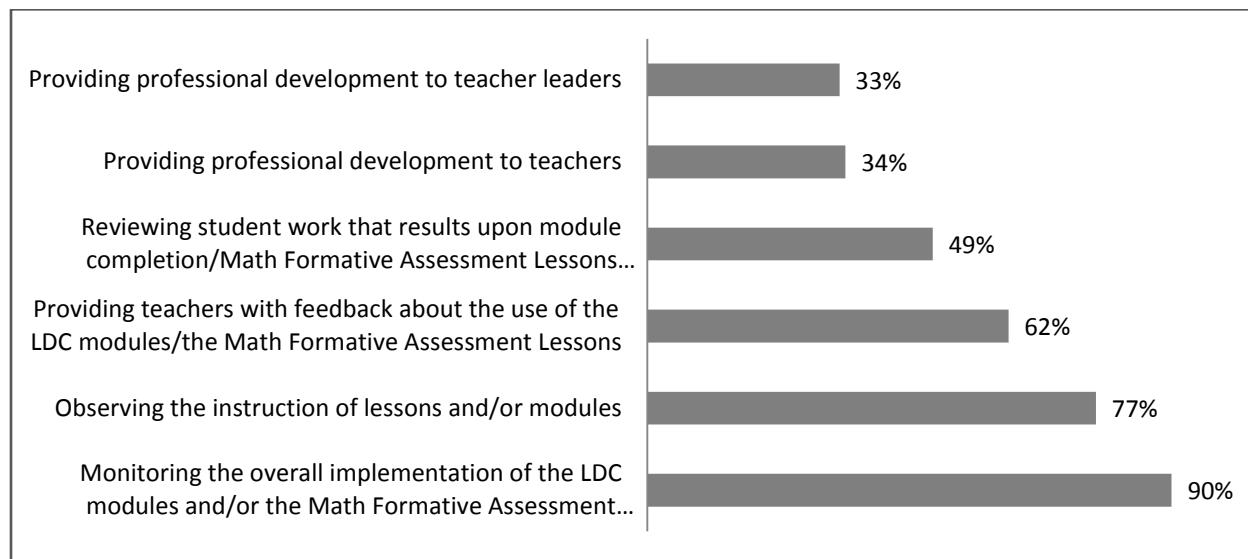
- Prioritizing support for the use of the tools
- Observing lessons and providing feedback to teachers on tool use
- Participating in training to becoming familiar with the tools
- Facilitating professional development and ongoing support for teachers

In some study sites, these responsibilities align well with principals’ roles in supporting the LDC and MDC Initiatives.

Principals have made gains in their involvement with the tools. Principals are playing a larger role in implementing the tools as compared with last year. In the first year of tool implementation, many principals had limited knowledge of the tools and were not deeply immersed in the Initiative beyond encouraging teacher participation. While principals continue to be less involved than district staff and teachers, they appear to be developing a deeper understanding of the tools and what to look for when used in classroom instruction.

Based on teacher survey data, the majority of principals had a firm understanding of the LDC and/or MDC Initiatives (58% and 63% respectively). Further, over 75% of surveyed principals reported observing tool implementation (as compared to 21% based on LDC teacher survey data from last year) and over 60% reported providing feedback to teachers on the tools (as compared to 13% on LDC and 17% on MDC reported in last year’s teacher survey data) (see Figure 17). One principal explained, “you’ve got to get in there (classrooms) enough that they (teachers) actually feel like you know what’s going on. If you only show up once or twice a month...they can have those conversations where they say, ‘well you were only in there twice last month for five minutes you didn’t really see anything’...I could be missing the good stuff.”

Figure 17. Principals' roles in supporting the tools



Teachers are emerging as strong school leaders. We define teacher leaders as those involved in piloting the tools in Year One who now provide guidance to their colleagues as they use the tools for the first time. Interviews with teachers and administrators suggest five key responsibilities/roles for teacher leaders that are important for successful tool implementation and scale-up:

- Providing support to other teachers through ongoing technical assistance
- Building school-level capacity for the work of implementing the scaling the tools
- Helping to develop and review LDC modules
- Serving as district leaders in the scale-up of the tools
- Presenting on their experiences in using the tools to teachers outside of the district

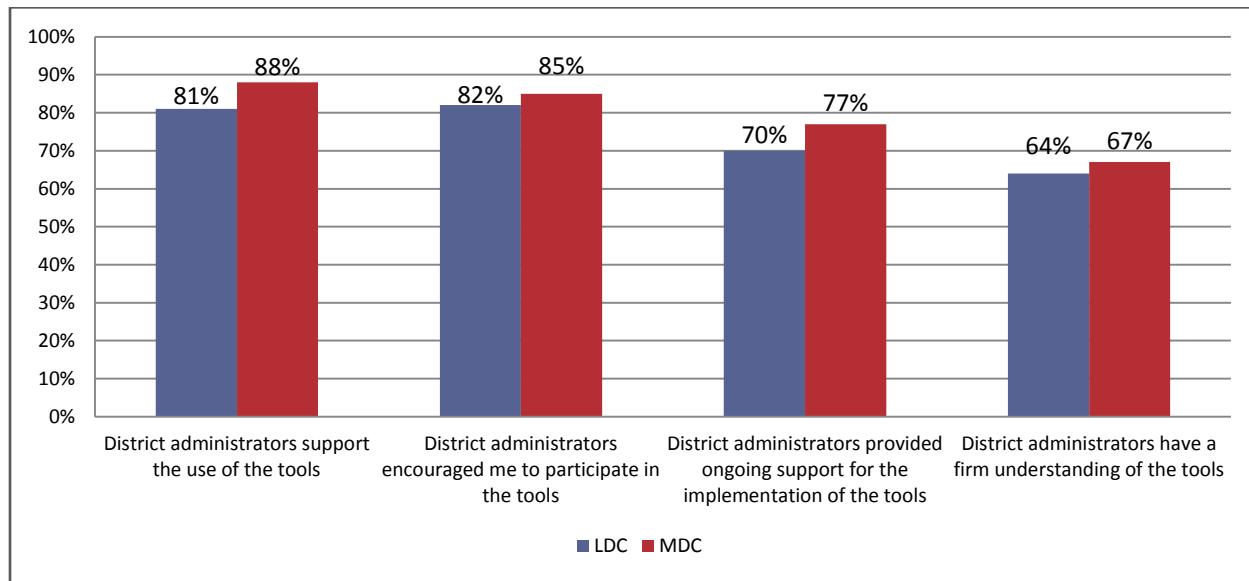
District Leadership

District leadership provides support for implementation and scale-up. As was the case in Year One, the role of district or network staff continued to be central to the coordination, implementation and scale-up of the tools across sites, as well as the overall implementation of the Common Core State Standards.

District leaders can greatly impact the viability of an initiative by ensuring that they provide the necessary supports to educators. Our research indicates that district leadership is supporting tool use in the following three ways:

1. **District Leaders provide support and encouragement for tool use.** As shown in Figure 18, over 80% of teachers reported that district administrators had supported the use of the tools and encouraged their participation in the Initiatives, in part as a vehicle for addressing the Common Core. A slightly lower percentage of LDC teachers than MDC teachers saw district staff as providing ongoing support for the tools (70% - LDC; 77% - MDC) and having a firm understanding of the tools (64% - LDC; 67% - MDC).

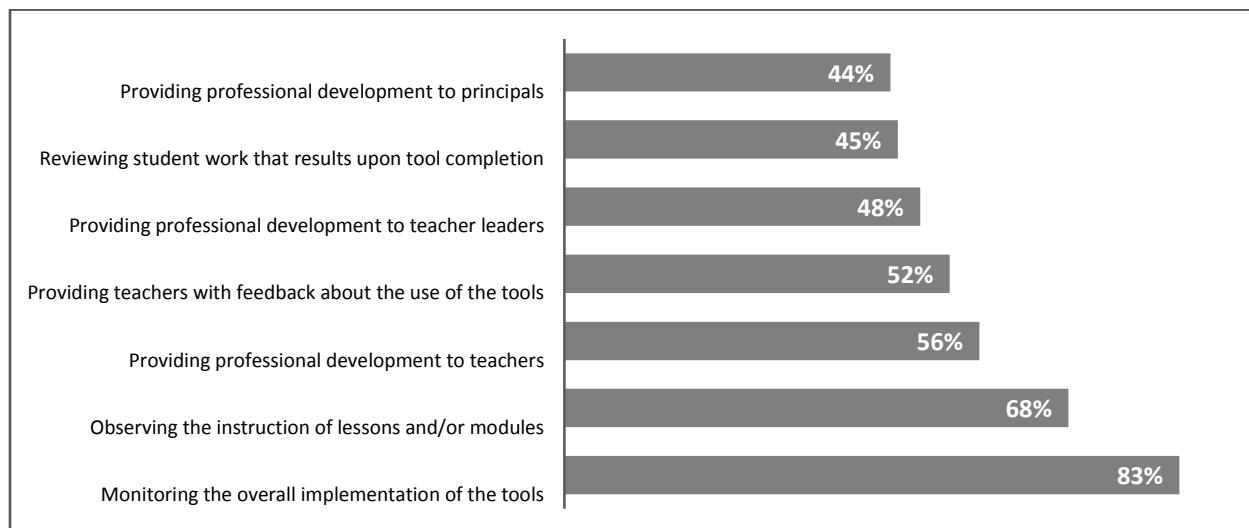
Figure 18. Teachers' perceptions of district support for the tools



2. **District Leaders provide instructional support.** Common roles that district staff played in supporting tool instruction are outlined in Figure 19, and show that the majority of district staff reported having the following responsibilities:

- monitoring the overall implementation of the tools;
- observing tool instruction;
- providing professional development to teachers; and,
- providing teacher feedback.

Figure 19. District and network instructional support roles



Promising Practices in District Instructional Support

While the leadership structure for implementing and scaling the tools varied across study sites, sites showing great promise were likely to deploy instructional support staff (curriculum consultants, school-based reading coaches and resource teachers, and instructional specialists) to the schools to facilitate the process of training teachers on tool use and to provide ongoing support for teachers.

3. **District Leaders make tool use a priority:** In sites where there was considerable scale-up, district staff made clear that use of the tools was a priority and a central strategy in implementing the Common Core State Standards in the classroom. Establishing the Initiative has been more difficult in sites where implementation of the tools is voluntary. Overall, the majority of teachers in literacy (62.5%) and math (70.8%) saw the use of the tools as required, not just optional.

How have leaders at the state and regional levels coordinated and supported the work of expanding and deepening tool use?

State and regional leaders played an important role in supporting the work of expanding and deepening tool use. While state education agencies have been involved in the planning and coordination of tool implementation and scale-up in some cases, additional state partners and regional organizations also provided valuable resources to scale the work across the study states.

The locus of tool leadership has varied across the study sites. The role of lead organizations in scaling the tools has been shared by state education agencies, regional service centers, districts and state partner organizations (see Figure 20).

Figure 20. Leads organization in tool implementation and scale-up across study sites

Site	State Leadership	State Partner	Regional Leadership	District or Network Leadership
Colorado	✓	✓		✓
Florida		✓		✓
Kentucky	✓	✓	✓	✓
New York				✓
Pennsylvania	✓		✓	

Leadership in scale-up often varies by local context and the capacity of the state and district; different models for scaling the tools provide examples for new sites as they develop their own scale-up strategies.

- In **Kentucky**, the state department of education is taking the lead in scaling LDC and MDC tools across the state this year, but regional cooperatives and the Prichard Committee, a state partner organization, have all provided training in implementing and scaling the tools. In addition, the state is working with integration² and pilot districts to act as models for other districts as the tools are scaled statewide.

² Building on previous work in the nine pilot districts funded through the Prichard Committee by the Bill & Melinda Gates Foundation, Kentucky will scale up the implementation of these tools in 12 integration districts across the state, selected through a competitive application process through KDE. Along with the scaling of the LDC and MDC tools, integration districts will also implement Kentucky's new teacher and

- **Pennsylvania** received funding through a Striving Readers Grant³, and LDC is one of the nine technical assistance areas in which support can be given to districts. Also, the LDC modules that have already been designed in Pennsylvania are available on the State Department of Education (SDE) online portal. Additionally, using a regional model, Intermediate Unit 13 (IU13) has done the majority of the training across the state through other IUs.
- **Florida's** Department of Education is not yet focusing on the implementation of the CCSS at the secondary level, but has been in partnership with the Hillsborough Public Schools and the National Literacy Project in their work supporting the implementation of the LDC tools in multiple districts.
- **Colorado's** Department of Education (CDE) is working in partnership with the Colorado Legacy Foundation (CLF) to implement and scale the LDC and MDC tools in the integration districts in the state; the Initiative started with training including both CLF and CDE staff in January 2012.
- **New York** has issued an RFP for the development of larger curricular units and has not endorsed the use of the LDC and MDC tools. New York City is working to implement and scale the tools by leveraging service networks internal to the city.

State Education Agency Capacity is a Challenge. As can be seen in Figure 21, the level of capacity in state departments of education to implement the Common Core as measured by district and principal survey responses varies, with less than half of survey respondents rating SDEs as having high levels of capacity. “The first issue that most SDEs struggle with is having a limited amount of intellectual and human resources at hand (Unger, Lane, Cutler, Lee, Whitney, Arruda & Silva, 2008).” In recent years, this issue has been exacerbated by declining state budgets and increased demands and responsibilities of departments. Limited capacity and fiscal constraints may explain, in part, why tool implementation has been spearheaded by state partners that can provide additional resources in coordination with state agencies.

Figure 21. Principal and district survey data on SDE capacity in implementing the Common Core State Standards

	Principal Responses			District Responses		
	Low	Medium	High	Low	Medium	High
Involvement and Capacity						
Availability of knowledgeable personnel at state DOE to implement the CCSS (2011-2012).	23%	42%	34%	16%	37%	47%

principal effectiveness system, which will be validated through the Measures of Effective Teaching (MET) project. State effectiveness coaches have been hired and trained by the state to support the integration districts in this work.

³ The Pennsylvania Department of Education (PDE) has been awarded \$38 million through the United States Department of Education’s Striving Readers Comprehensive Literacy Program.

How strong is the relationship between effective leadership and Indicators of Robust Implementation?

Analysis of LDC teacher surveys reveals strong positive correlations between school and district leadership levels and most indicators of Robust Implementation (excluding teacher beliefs). Further, when strong leadership exists, as in the case of LDC, indicators of Robust Implementation exist.

However, the same was not true regarding MDC, where there appears to be negligible relationships between leadership and most indicators of Robust Implementation (see Figure 22).

The leadership construct represents survey items measuring teacher perceptions of both school leadership and district/network leadership as it relates to supporting, encouraging, understanding, and prioritizing tool use.

Figure 22. Correlations between Robust Implementation Indicators and Leadership

School Leadership								
	Teacher Beliefs	Teacher Buy-in	Teacher Knowledge	Instructional Change	Student Engagement	Student Learning	Breadth & Depth	Mean
(LDC)	.05	.33	.28	.25	.28	.25	.16	.23
(MDC)	-.06	.08	.17	.03	.18	.04	.04	.06
District/Network Leadership								
	Teacher Beliefs	Teacher Buy-in	Teacher Knowledge	Instructional Change	Student Engagement	Student Learning	Breadth & Depth	Mean
(LDC)	.03	.27	.29	.23	.25	.28	.14	.21
(MDC)	.03	.09	.18	.03	.10	.10	.04	.08

NOTE: Correlations greater than 0.10 are highlighted in this table.

Explanations for the weak relationship between Leadership and Robust Implementation Indicators in MDC.

The explanations provided to explain the weak relationship between Alignment and Robust Implementation indicators in MDC hold true for the relationship between Leadership and Robust Implementation and reinforces the difficulty of measuring impact at this early state of the initiative.

- **Leadership capacity varied between LDC and MDC sites.** One site in particular exhibited strong district leadership in support of the Formative Assessment Lessons. According to interview data, the MDC coordinator was described as providing clear direction to teachers, ongoing support, technical assistance, and was considered to be highly respected among colleagues. Further, 91% of teachers strongly agreed that the district supported tool use. Yet leadership was not as strong or consistent in the three remaining MDC research sites. In one

case, district staff expressed a lack of support for the Formative Assessment Lessons as a state requirement. In another, schools involved in the Initiative did not receive district support and were part of a charter network that left the schools isolated. In the third, turnover in personnel created a lack of clear district direction. In looking across these three sites, only 52% of teachers strongly agreed that the district supported tool use.

- **The Formative Assessment Lessons were not always made a priority at the district level.** Only one district made Lesson implementation a clear priority; 80% of principals responded that using the Formative Assessment Lessons was a requirement for all teachers. In another site, district leaders decided that individual school principals could make the Initiative voluntary for teachers in their first year of piloting the tools. In a third, the district allowed individual schools to decide whether or not to participate and how to coordinate professional development. Across these sites only 37% of principals responded that using the MDC tools was a requirement for all teachers.

Professional Learning Opportunities



Meaningful professional learning opportunities must be intensive, ongoing, and incorporate content knowledge as well as instruction. They should also include opportunities for collaboration with peers and classroom-based assistance.

Meaningful and on-going professional learning opportunities are critical to supporting and expanding the use of the tools in more classrooms and districts. The following questions guide this discussion of professional learning opportunities experienced by teachers:

1. What types of professional learning opportunities have been used to train teachers and administrators about the tools?
2. What are teacher perceptions of the professional learning opportunities they are currently receiving?
3. What additional professional learning opportunities would teachers like to receive?
4. How strong is the relationship between professional learning opportunities related to the Initiatives and indicators of Robust Implementation?

Formal professional learning opportunities include: showcases to encourage new districts to become involved; district /network trainings; convenings across districts/regions; conferences; afterschool professional development; webinars; website reference provided by organizations affiliated with LDC/MDC; and scheduled teacher collaboration.

Informal approaches include: emails, phone calls, and teacher-initiated collaboration and mentoring.

What types of professional learning opportunities have been used to train teachers and administrators about the tools?

A variety of professional learning opportunities are available to teachers, principals, and district staff affiliated with the LDC/MDC Initiatives. Professional learning opportunities available to both LDC and MDC teachers include one-on-one classroom visits, Initiative overviews, and webinars. LDC teachers may also have access to developing modules, reviewing sample modules, developing teaching tasks, and reviewing the LDC rubric. MDC teachers may also have access to lesson study, Formative Assessment Lessons simulation, small group meetings, Formative Assessment Lessons overview, and Formative Assessment Lesson modeling.

The majority of teachers reported participating in formal professional learning opportunities during both years of the LDC/MDC Initiatives. These professional learning opportunities are provided by multiple sources and in varied formats. Over 73% of teachers surveyed in Year Two participated in formal professional learning opportunities related to LDC in 2011-2012 only. Of these teachers surveyed, 3% participated in formal LDC professional learning opportunities in 2010-2011 only, while 23% of teachers reported participating in these sessions both years. For MDC, 43% of teachers participated in professional learning opportunities in 2011-2012 only, while a large percentage of teachers reported participation in both years (53%).

What are teacher perceptions of the professional learning opportunities they are currently receiving?

LDC and MDC teachers generally perceived professional learning opportunities to be effective. Figure 23 and Figure 24 provide survey data on teacher perceptions of the various forms of professional learning opportunities available.

- LDC teachers found professional development specific to the work of implementing the modules, such as *developing modules* and *teaching tasks*, *working in small groups* and *reviewing sample modules* to be most effective.
- MDC teachers found professional development specific to the work of implementing the Formative Assessment Lessons, such as *lesson study* and *Formative Assessment Lesson simulation*, to be most effective.

LDC and MDC teachers perceived certain professional learning opportunities as less effective. Teachers raised concerns about certain types of professional learning opportunities:

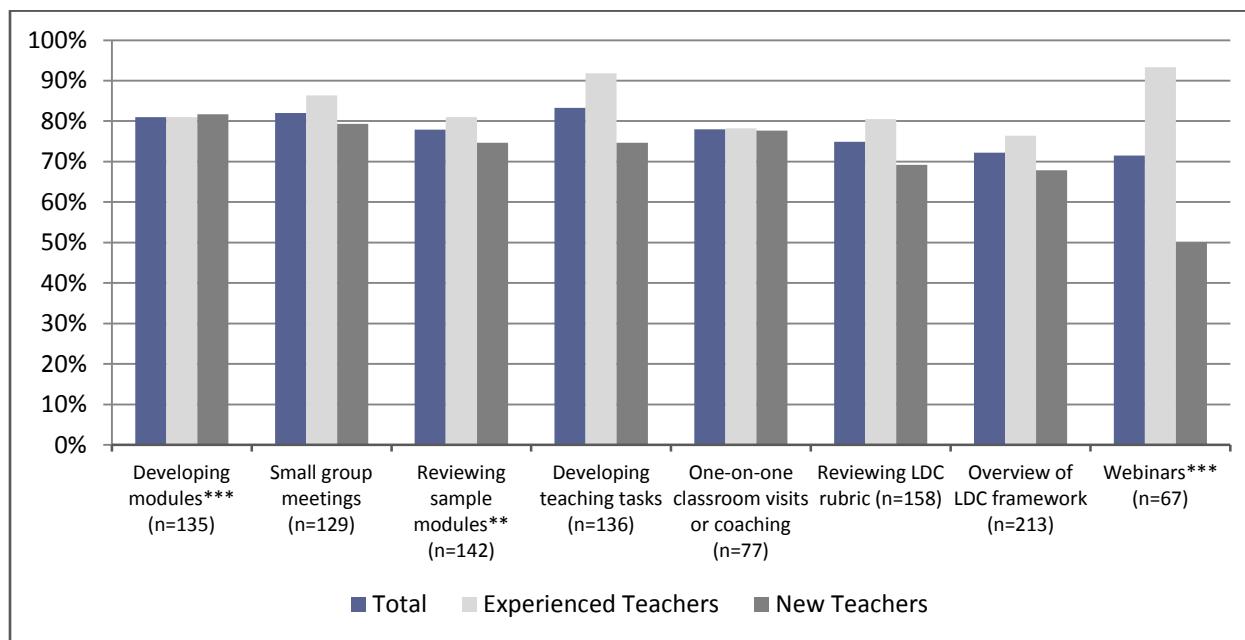
- Technology-based professional development. Webinars were identified as least effective by new LDC teachers and by both new and experienced MDC teachers. Interestingly, experienced LDC teachers found webinars to be very effective. This implies that webinars may be a tool for scale-up only if used with the appropriate audiences.
- LDC scoring rubric. Changes to the LDC rubric and a lack of consensus among trainers about how to interpret the rubric has been a challenge for teachers.
- Initiative framework. LDC and MDC teachers recounted a lack of framing of the overall purpose of the tools during professional development sessions.

MDC teachers reported utilizing more informal channels of professional learning opportunities available to them. Many MDC teachers reported that they sought out information related to the Initiative beyond what was provided in formal professional development sessions. Many also developed a more comprehensive understanding of the Initiative and a clearer picture of particulars related to Formative Assessment Lessons use as a result of asking clarifying questions of district staff and professional development providers via email communications or phone conversations.

New and experienced teachers differed in the forms of professional learning opportunities they found useful.

- LDC teachers with more experience tended to find more narrowly focused forms of professional development to be more effective: *developing teaching tasks, reviewing LDC rubric, and webinars* (see Figure 23).
- Newer LDC teachers found broader training to be more effective (i.e., developing modules) (see Figure 23).
- MDC teachers with greater experience tended to rate most forms of professional learning opportunities as more effective than their colleagues with less experience (see Figure 24).
- MDC teachers new to the Initiative rated *lesson study* and *small group meetings* as the most effective forms of professional development (see Figure 24).

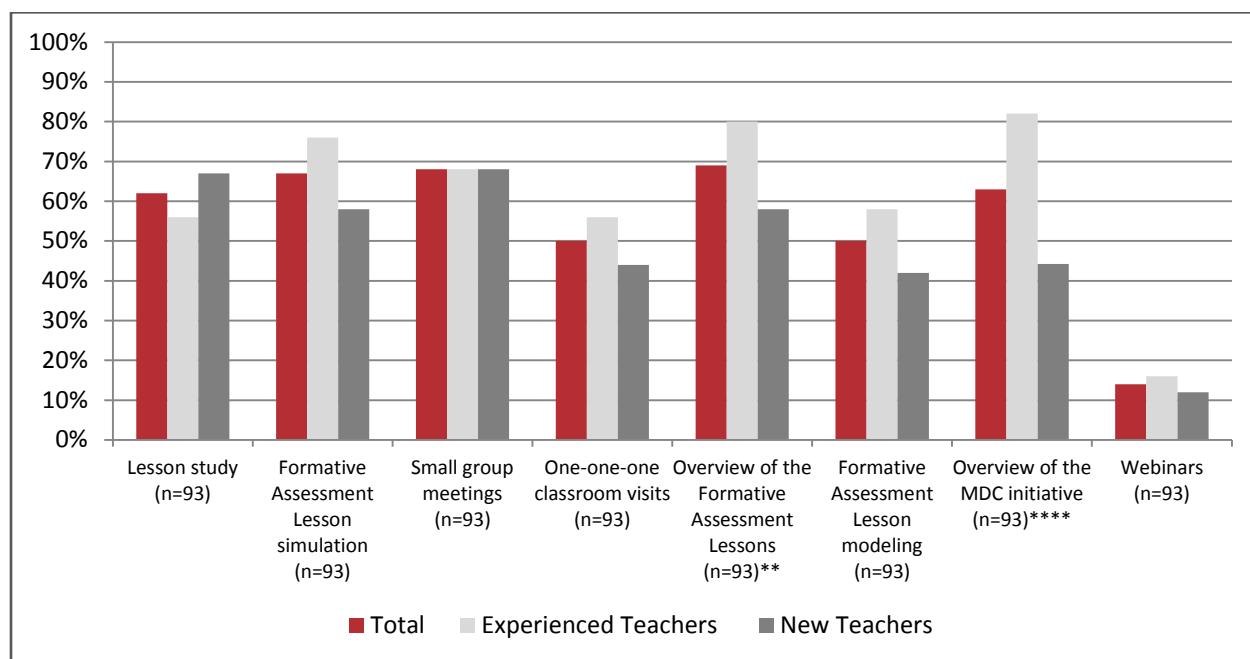
Figure 23. LDC Teachers' perceptions of effective forms of professional learning opportunities for the LDC Framework



**Differences between experienced and new teachers are significant at the 0.1 level

***Differences between experienced and new teachers are significant at the 0.05 level

Figure 24. MDC teachers' perceptions of effective forms of professional learning opportunities for the Formative Assessment Lessons



**Differences between experienced and new teachers are significant at the 0.1 level

****Differences between experienced and new teachers are significant at the 0.01 level

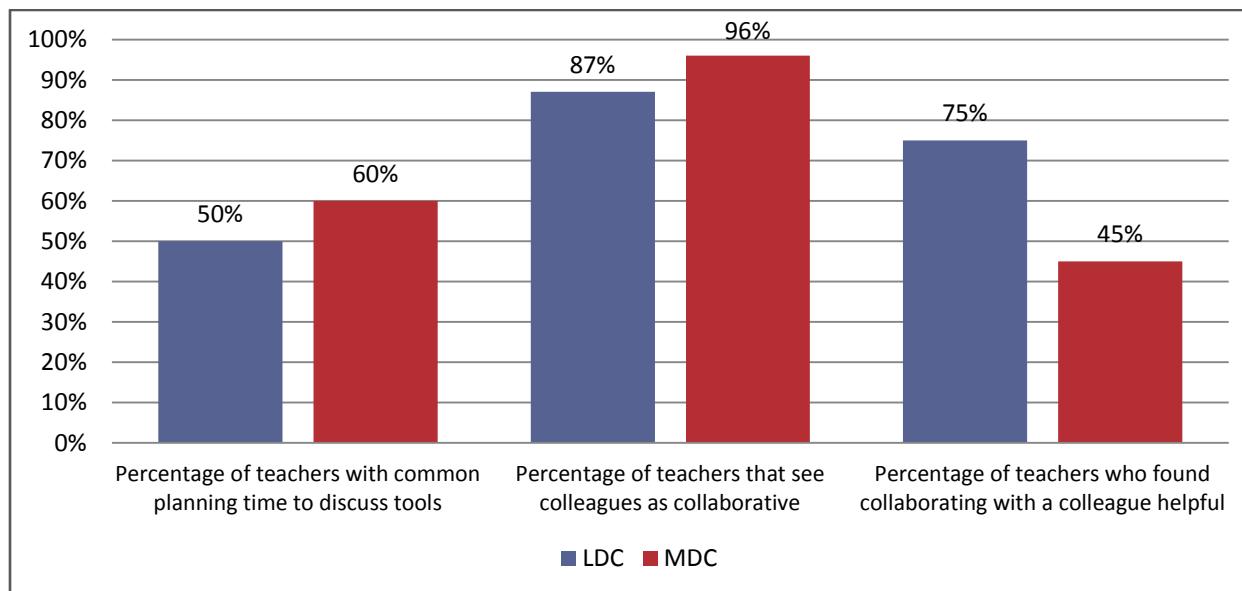
Teachers continued to value the opportunity to collaborate with their peers.⁴ Collaboration has been found to be an effective approach to implement and scale the tools, particularly for LDC (see Figure 25). In interviews, many teachers mentioned working with colleagues as being the most beneficial part of the professional development they received. Further, on-going teacher collaboration appears to have increased teacher buy-in and knowledge of the tools. In addition to working directly with teacher colleagues, a handful of teachers emphasized the helpfulness of observing another teacher's classroom and, in some cases, these classrooms were in schools across the district. Specific findings include:

- LDC teachers found collaboration particularly helpful with *using the LDC tools, implementing LDC modules, and supporting student learning*. Collaboration usually took place within a content area, but also occurred across teams within a school, across schools within a district or, in the case of a regional implementation, across districts.
- MDC teachers felt collaboration was particularly helpful in *identifying math concepts, using MDC tools, and supporting student learning*.
- MDC teachers placed less emphasis on the value of teacher collaboration than LDC teachers. While a large majority (75%) of LDC surveyed teachers found collaboration helpful, less than half of MDC teachers agreed. These findings may reflect the nature of Formative Assessment Lessons, since they do not require the intensive process of developing a lesson, as is the case with LDC.

⁴ Limited differences were found in survey responses across common questions from years one and two.

Teachers reported limited opportunities for teacher collaboration. While the vast majority of all teachers consider their colleagues collaborative, only half of LDC teachers and 60% of MDC teachers reported having common planning time to discuss the tools.

Figure 25. Teachers' perceptions of collaboration opportunities



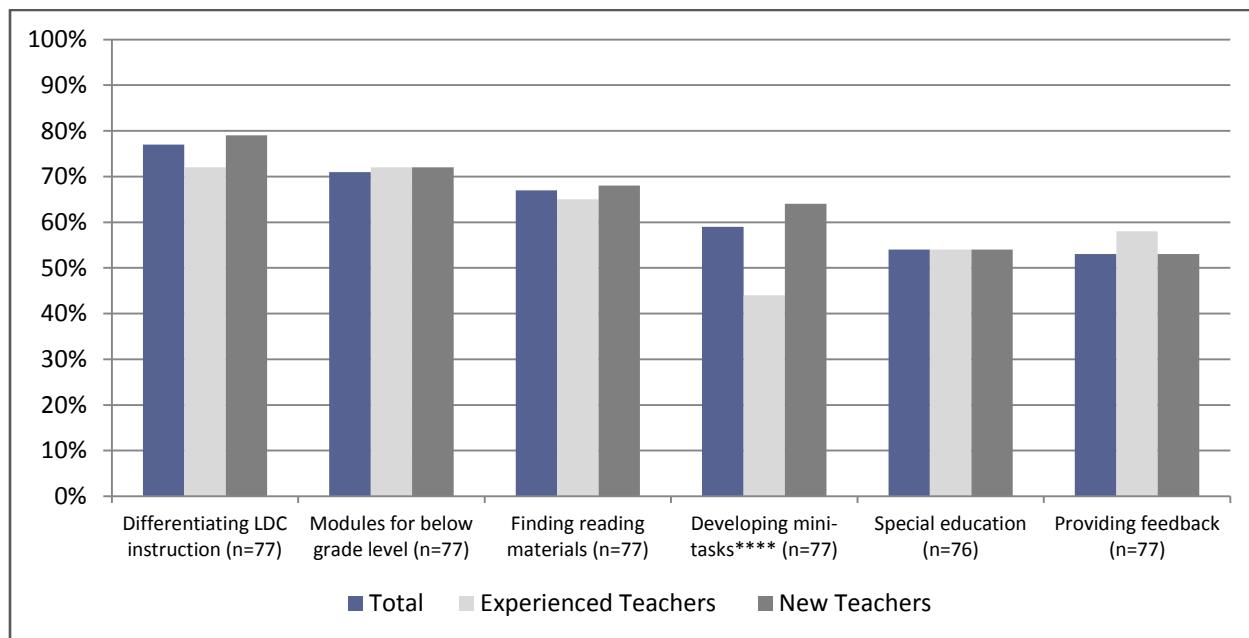
What additional professional learning opportunities would teachers like to receive?

Over half of surveyed LDC and MDC teachers identified a list of topics they hoped to cover in future professional learning opportunities (see Figures 26 and 27). These topics include training tied broadly to the needs of the students as well as training specific to use the tools (e.g., finding reading materials for LDC modules, developing feedback questions to support student learning in Formative Assessment Lessons).

- Over half of LDC and MDC surveyed teachers would like additional professional development in working with students with different learning needs.
 - LDC teachers would like professional development on *differentiation, modules below grade level, and special education.*
 - MDC teachers would like professional development on *struggling students, differentiation, ELL students, and special education students.*
- Over half of LDC and MDC surveyed teachers would like additional professional development in effective tool use.
 - A continuing concern for LDC teachers implementing modules is *finding appropriate reading materials.*
 - *Providing feedback* on student work is challenging for teachers.
 - New LDC teachers would like more professional development centered on *developing mini tasks.*

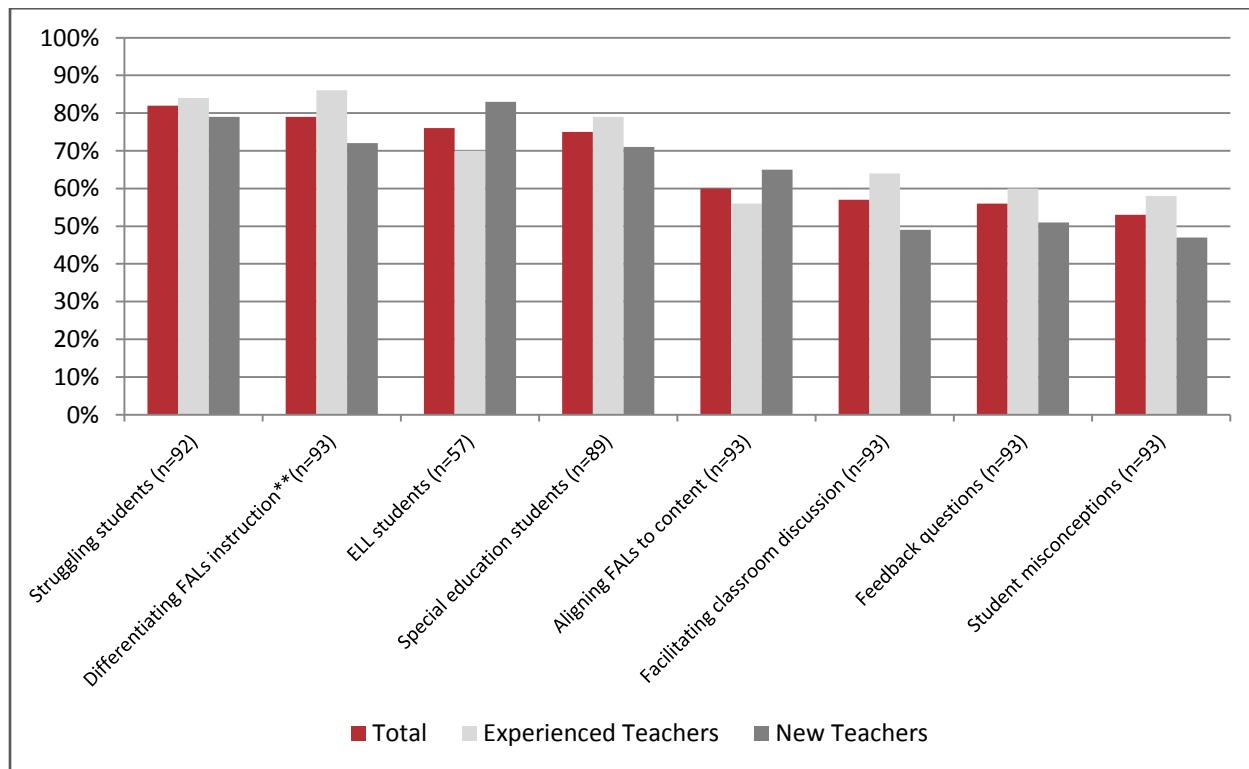
- MDC teachers would like more professional development centered on *facilitating classroom discussion and feedback questions* during small group work (see Figure 27).

Figure 26. Topics on which more than half of LDC teachers would like additional professional learning opportunities



****Differences between experienced and new teachers are significant at the 0.01 level

Figure 27. Topics on which more than half of MDC teachers would like additional professional learning opportunities



*Differences between experienced and new teachers are significant at the 0.1 level

How strong is the relationship between professional learning opportunities related to the Initiatives and indicators of Robust Implementation?

When teachers engage in professional learning opportunities, they tend to also report indicators of Robust Implementation, particularly for LDC. Since teachers involved in the LDC and MDC Initiatives received professional learning opportunities from many different sources and in many different formats, we investigated the overall correlations between professional learning opportunities and the outcomes relevant to this study. As seen in Figure 28, there is a moderate to strong positive relationship between professional learning opportunities and many indicators of Robust Implementation including teacher buy-in, teacher knowledge, instructional change, student engagement, and student learning. The relationships appear strongest with the LDC tools. Again, the explanations provided to explain the weak relationship between Alignment and Robust Implementation indicators in MDC hold true for the relationship between professional learning opportunities and Robust Implementation.

The professional learning opportunities construct represents survey items measuring teacher perception of professional development effectiveness.

Figure 28. Correlations between Robust Implementation Indicators and professional learning opportunities

	Teacher Beliefs	Teacher Buy-in	Teacher Knowledge	Instructional Change	Student Engagement	Student Learning	Breadth & Depth	Mean
(LDC)	.03	.46	.33	.33	.38	.45	.20	.32
(MDC)	.08	.16	.18	.13	.15	.18	.09	.13

NOTE: Correlation greater than 0.10 are highlighted in this table

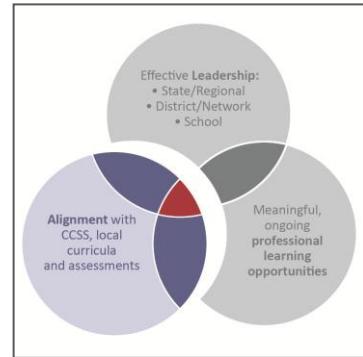
Recommendations to Ensure Supportive Conditions for Scale-up and Sustainability

Our research findings on the conditions for successful scale-up presented above suggest a number of recommendations that can help inform decisions regarding the scale-up of the tools moving forward. The remainder of this brief offers these recommendations for consideration by key stakeholders seeking to further develop LDC and MDC tool use as a means of supporting teachers in their efforts to improve their practice and support students attain the Common Core State Standards and become college and career ready. The Theory of Action identifies three spheres that comprise the “conditions that support scale-up:” alignment, leadership, and professional learning opportunities. The recommendations presented below are organized by these three spheres.

Alignment

Encourage Common Core aligned instruction in classrooms.

- Districts and schools are most likely to set Common Core aligned instruction as a priority in the short term if states are clear that this is what is expected. As stakeholders develop tool implementation and scale-up strategies, they need to take into account the state policy context and what timeline the state has put forward for Common Core implementation in the classroom. This context will impact teacher perceptions of the importance of tool use.



Align messaging across educational governance levels.

- Teachers need to receive the same messages about the Common Core in general, and the tools specifically, from school, district, regional, and state leaders. If teachers hear from the state that using the tools is an expectation, but they understand from the principal that it is voluntary, consensus on prioritizing tool use is less likely to emerge.

Address alignment between tools and state accountability systems.

- Datnow, Hubbard and Mehan (2002) argue that high stakes accountability systems often measure success more narrowly than school reforms and therefore inhibit the change the reform is trying to create. Indeed, even if the overall state assessment systems in study states are aligned to the Common Core, pressures to cover content often works against the tools' emphasis on depth of knowledge as opposed to breadth of coverage, especially in subjects tested with end-of-course exams. At the same time, teacher evaluation systems that include data from assessment systems not yet aligned with the Common Core may send teachers mixed signals about where to focus their efforts. These alignment issues will need to be addressed at all levels of educational governance if teachers are to willingly embrace use of the tools.

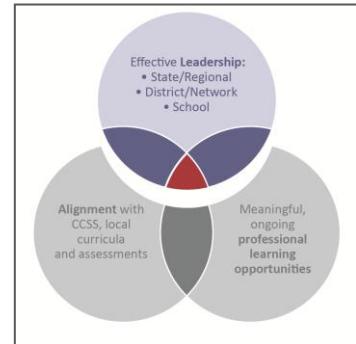
Coordinate tool implementation and scale-up with existing curricula.

- The tools competed with larger curricular initiatives for the attention of teachers in a number of sites. Even in places where the tools were aligned with other curricula, it was not always clear how the tools added additional value to what was already in place. District administrators responsible for curriculum should ensure that teachers understand the purposes of the tools, how they support other initiatives, and where best to place them in the overall pacing of instruction.

Leadership

Include principals and other school-based leaders in the work of scaling the tools.

- Research is clear that principals play an essential role as instructional leaders in the schools (Bodilly, Glennan, Kerr & Galegher, 2004). For this reason, principals or their designees need to do more than just support the use of the tools in their buildings. Principals or their designees should be included in the work of implementing and scaling the tools through strong training in tool use and experience observing classrooms. Furthermore, they should provide teachers with the time and resources necessary to implement the tools well.



Utilize the experiences of teachers involved in piloting the tools.

- Teachers involved in the first year of tool implementation in their districts can play an important role in helping new teachers learn to use the tools. Through regular collaboration and inclusion in school and district planning teams, experienced teachers are invaluable to new teachers as they use the tools for the first time, as well as to the overall planning of scale-up strategies.

Ensure a strong district/network staffing and coordination strategy for scale-up.

- In both Years One and Two of the research, a key element of tool implementation has been the central role of the district or network. District staff responsible for the work need to be well trained in the purposes of the tools, know how to implement them in the classroom, and understand how to provide support to teachers in the form of professional development and ongoing technical assistance.

Assess available district, regional and state capacity.

- The literature on scale-up emphasizes that the local context must be taken into consideration. In applying this idea to leadership and looking at the sites where research has been conducted, we see that organizations taking the lead in scaling the tools, including state partner organizations and regional service centers, often differ by site in terms of capacity. In developing strategies for scaling up, it is important for educational leaders to consider how best to leverage existing capacity to implement and scale the tools. Resources may include regional service centers, educational advocacy groups, large districts, postsecondary institutions and state-based foundations, in addition to the resources within the state education agency.

Look for opportunities to increase regional and state capacity.

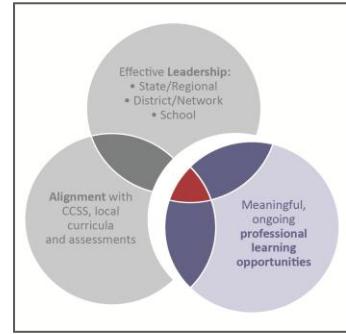
- As discussed earlier, states have worked to develop their capacity to scale-up the tools and support teachers through grants and other funding streams. Examples include the Striving

Readers Grant in Pennsylvania, Regents Fellowships in New York, and the Integration Grants in Colorado, Kentucky and Louisiana. With limited capacity at the state level, stakeholders will need to think creatively to find the resources needed to support tool use.

Professional Learning Opportunities

Coordinate messaging and training process among tool developers and training providers.

- Consistent messaging in the training provided to teachers across sites regarding the strength and fidelity of tool implementation is essential as the number of professional development providers increases. As these providers have worked to address the needs of individual sites, the processes used in the trainings have become more varied. Consensus around the most effective forms of training and what messages are given to teachers about implementing the tools with fidelity will be increasingly important as the tools continue to be scaled.



Include all educators involved with the tools in professional learning opportunities.

- In many cases, as the tools have been scaled, trainings have continued to focus on preparing a small cadre of teachers to implement the tools, who then work with their colleagues to introduce the tools to more teachers in the district. The central role of school and district leaders has not been emphasized through training; school and district leaders are, therefore, sometimes ill equipped to support their teachers' work in a meaningful way. This is in contrast to a train-the-trainer model that would focus professional development at the district and building level staff who play a key role in leading the scale-up of the tools. Our research indicates that each level of education stakeholder needs to be well trained in order to scale the work and divest knowledge to build capacity.

Provide a level of training that reflects the depth of pedagogical change required by the tools.

- The training currently being provided, especially at the district and regional levels, does not always address the depth of the change required by teachers and school leaders to implement the tools. Respondents have reported that trainings can sometimes be cursory, even though the tools present a significant departure from traditional pedagogy. Survey data has shown that webinars are the least effective form of professional development while more in-depth training, such as building LDC modules and working through math Formative Assessment Lessons, provides the greatest benefit to teachers. As the tools are scaled, the depth of training needs to remain sufficient to ensure proper implementation resulting in improved student learning outcomes.

Ensure ongoing opportunities for collaboration with peers.

- It is clear from both Year One and Year Two research that collaboration is a central strategy to implement and scale the tools. Therefore, opportunities need to be provided for this work to take place. Principals and district leaders should support teachers in scheduling time to work together as they first learn to use the tools and continue to refine their practice.

Works Cited

Birman, B. F., Desimone, L., Porter, A.C., & Garet, M.S. (2000). Designing professional development that works. *Educational Leadership*, 57 (8), 28-33.

Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2004). Working inside the black box: Assessment for learning in the classroom. *Phi Delta Kappan*, 86 (1), 8-21.

Bodilly, S., Glennan, T., Kerr, K., & Galegher, J. (2004). "Introduction: Framing the Problem." In Glennan, T., Bodilly, S., Galagher, J., and Kerr, K. (Eds.) Expanding the Reach of Education Reform. Santa Monica: RAND.

City, E.A., Elmore, R.F., Fiarman, S.E. & Teitel, L. (2010). The instructional core. *Instructional rounds in education: A network approach to improving teaching and learning*. Cambridge, MA: Harvard Education Press.

Clarke, B. & Shinn, M.R. (2004). A preliminary investigation into the identification and development of early mathematics curriculum-based measurement. *School Psychology Review*, 33, 234-248.

Coburn, C. (2003) "Rethinking Scale: Moving Beyond Numbers to Deep and Lasting Change." *Educational Researcher*, Vol. 23, No. 6, pp. 3-12.

Cobb, P., McClain. K., Lamberg, T., & Dean, C. (2003). "Situating Teachers' Instructional Practices in the Institutional Setting of the School and District" *Educational Researcher*, Vol. 23, No. 6, pp. 13-24.

Datnow, Hubbard & Mehan (2002). Extending Educational Reform: From One School to Many. New York: RoutledgeFalmer, pp. 117-145.

Fuchs, L.S. (2004). The past, present, and future of curriculum-based measurement research. *School Psychology Review*, 33, 188-192.

Gewertz, C. (May 30, 2012) "Common-Core Training for Principals on Increase." *Education Week*, Vol. 31, Issue 33.
<http://www.edweek.org/ew/articles/2012/05/30/33principals.h31.html?tkn=MQBFLb23zN5b2L6ybYEvqqU4Cn%2BrEDA4KCjc&cmp=clp-cseclips>.

Heibert, J. & Carpenter, T.P. (1992). Learning and teaching with understanding. In D.A. Grouws (Ed.), *Handbook of research on mathematics teaching and learning*. New York: Macmillan, 65-97.

Heibert, J. & Wearne, D. (1993). Instructional tasks, classroom discourse, and students' learning in second-grade arithmetic. *American Educational Research Journal*, 30 (2), 393-425.

Jones, B., Valdez, G., Nowakowski, J., & Rasmussen, C. (1994). Designing Learning and Technology for Educational Reform. Oak Brook, IL: North Central Regional Educational Laboratory.

Kennedy, M. (1998). Form and substance in in-service teacher education. Madison WI: National Institute for Science Education.

| Lawrence, N., Sanders, F., Christman, J., & Duffy, M. (2011). Establishing a Strong Foundation: District and School-Level Supports for Classroom Implementation of the MDC Framework. Philadelphia, PA: Research for Action.

Reumann-Moore, R., Sanders, F., & Christman, J. (2011). Establishing a Strong Foundation: District and School-Level Supports for Classroom Implementation of the LDC Framework. Philadelphia, PA: Research for Action.

Tunstall, P. (1996). Teacher feedback to young children in formative assessment: A typology. *British Educational Research Journal*, 22, 398-395.

Unger, C., Lane, B., Cutler, E., Lee, S., Whitney, J, Arruda, E., & Silva, M. (2008). How can state education agencies support district improvement: A conversation amongst educational leaders, researchers, and policy actors. Providence, RI: The Education Alliance at Brown University.

Yonezawa, S. & Stringfield, S. (2000). Special Strategies for Educating Disadvantaged Students follow-up study: Examining the sustainability of research based school reforms. Baltimore: Johns Hopkins University CRESPAR.